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ECONOMIC INSECT REPORT

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AGRICULTURAL RESEARCH SERVICE

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AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL BRANCH

ECONOMIC INSECT SURVEY SECTION

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Branch serves as a clearing house and does not assume responsibility for accuracy of the material.

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Volume 5 April 15, 1955 No. 15

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

Heavy carryover of SUGARCANE BORER in Louisiana. (page 315).

CLOVER LEAF WEEVIL causing damage in Delaware, Missouri and Illinois, Virginia and Utah also report activity. (page 316).

MEADOW SPITTLEBUG hatching in Delaware, Maryland, and Pennsylvania. (page 317).

PEA APHID increasing on alfalfa in Delaware. Buildup continues in Virginia and Maryland. Appearing in several other states. (pages 317, 328).

ALFALFA WEEVIL active in Virginia, Maryland and Pennsylvania. (page 316).

BROWN WHEAT MITE causing damage in wide areas of Oklahoma and Kansas. Also in Washington County, Utah. (pages 316, 328).

Spring POTATO PSYLLID situation. (page 322).

BOLL WEEVIL survival counts in Virginia low. (page 324).

Illustrated key to species of TROGODERMA and to related genera of DERMESTIDAE commonly encountered in stored grain in California. (after page 330).

LIGHT TRAP collections. (page 326). ADDITION NOTES. (pages 328, 329).

First REPORTED RECORDS of season (by areas). (page 329).

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Reports in this issue are for the week ending April 8, 1955, unless otherwise designated.

WEATHER FOR THE WEEK ENDING APRIL 11, 1955

Showers and a general warming trend over the Country made the appearance of spring weather almost a reality during the week. However, skeptics could point to subfreezing temperatures over much of the Nation during the middle of the period as evidence that the exodus of winter was not complete. By the end of the week, temperatures were high again with stations in the northern third of the Country reporting their highest temperatures of the year.

The major center of precipitation in the Nation was located in the lower Mississippi River Valley. Southern Tennessee, northern Mississippi and northern Alabama reported over 2 inches of rain for the 4th straight week as thunderstorms moved over the area on the 5th and 6th. These heavy showers caused extensive erosion and flooded low lands. Rains along the Gulf Coast from Texas to western Florida over the weekend brought locally excessive amounts of moisture to southern Louisiana. Two inches of rain were also reported on the Olympic Peninsula in Washington. Showers were general, but light, over the remainder of the country, with the exception of the Southwest, the California Coast and a small area in the Mid-West where no precipitation was recorded during the period.

Alternating periods of warming and cooling kept temperatures near normal over most of the Nation during the week. Below normal temperatures were centered in the western Rocky Mountains where two cold frontal passages were reported during the period. Cold air outbreaks east of the Rockies brought subfreezing temperatures as far south as Oklahoma on the 7th and Virginia on the 8th. However, above normal temperatures at the beginning of the period and unseasonably warm temperatures on the 9th and 10th resulted in above normal temperatures for most of this area. The greatest positive departures from normal were located along the Canadian Border in North Dakota and Minnesota. Temperatures above 80° were reported at many stations in this area on the 9th and 10th. Duluth, Minn. recorded a temperature of 79° on the 10th, which equaled the station's record for highest temperature this early in the season.

The severe snow storm, occurring at the end of the last period in south central Montana and north central Wyoming, continued on the 4th. Sheridan, Wyo. and Billings, Mont. reported 33 inches of snow on the ground on the 5th.

Strong winds continued to pummel the drought stricken regions of the lower Western Plains. Soil drifting was reported from northeastern New Mexico to southeastern Nebraska. (Summary Supplied U.S. Weather Bureau).

CEREAL AND FORAGE INSECTS

EUROPEAN CORN BORER (Pyrausta nubilalis) - DELAWARE - Pupation in Sussex County 50 percent compared with 15 at this time in 1954, (Late News). PENNSYLVANIA - Apparently little mortality in Blair County as larvae readily found in corn stalks. (Udine).

SUGARCANE BORER (Diatraea saccharalis) - LOUISIANA - Survey of cane trash and early-planted cane for overwintering borers in various areas of the cane belt showed 1299 live borers per acre and 423 dead or percentage of 24.6 dead. This reveals heavy carryover of borers for fourth consecutive year and indicated likelihood of a destructive infestation for the coming season. As there were but few first generation borers in fields prior to recent cold weather, mortality was probably insignificant. The delayed development with continuous cultivation, however, should result in further reducing the winter carryover. (Dugas).

CORN EARWORM (Heliothis armigera) - LOUISIANA - Twenty-five per 200 sweeps in white clover in St. Landry Parish, 2 per 200 sweeps of white clover in West Feliciana Parish. (Oliver, Apr. 2).

CHINCH BUG (Blissus leucopterus) - DELAWARE - Few adults taken in meadow near Andrewsville. (Milliron). LOUISIANA - One per seedling corn plant in St. Landry Parish. (Oliver).

CORN FLEA BEETLE (Chaetocnema pulicaria) - DELAWARE - Adults very prevalent, from 2 to 4 per sweep of 15-inch net, in meadow near Andrewsville and at some places in Kent County. (Milliron). ILLINOIS - From 0-20 per 10 sweeps in roadside grass beside old corn fields, apparently highest in eastern Illinois. (Petty).

ENGLISH GRAIN APHID (Macrosiphum granarium) - MISSOURI - Light infestation, 4 to 25/linear foot of drill row on barley, rye and wheat in extreme southeast. (Kyd, Thomas).

GREENBUG (Toxoptera graminum) - LOUISIANA - Light in several fields of oats and wheat in Bossier, Claiborne, Avoyelles and Rapides Parishes. (Oliver).

APHIDS - ARKANSAS - Aphids mostly English grain aphid (Macrosiphum granarium) and corn leaf aphid (Rhopalosiphum maidis) generally distributed, but light, in central and northwestern counties. Predators active. (Warren).

BROWN WHEAT MITE (Petrobia latens) - UTAH - Severely infesting barley in Santa Clara-St. George area of Washington County. (Knowlton, Hughes). OKLAHOMA - Numerous in western and north central areas. Heavy damage in many fields. (Flora, Henderson, Howell).

ARMYWORM (Pseudaletia unipuncta) - FLORIDA - Larvae collected at Gainesville. (Patton). LOUISIANA - Twenty-three per 200 sweeps of white clover and 20 per 200 sweeps of oats in St. Landry Parish, 2 per 100 sweeps in oats in West Feliciana Parish, April 2. Two per 100 sweeps in Avoyelles Parish, and 3 per 100 in Claiborne Parish on small grains April 7. (Oliver). MISSOURI - A few moths in small grain fields in southeast as far north as St. Genevieve County. A very few overwintered fourth and fifth instar larvae noted but no spring-generation larvae found. (Kyd, Thomas).

ALFALFA WEEVIL (Hypera postica) - DELAWARE - Active throughout State, severe near Bridgeville, elsewhere scarce to moderately abundant. (Milliron). MARYLAND - Adults averaging 6-8 per 50 sweeps on alfalfa in Queen Annes, Talbot, and Anne Arundel Counties. Larvae beginning to damage tops of plants. A few adults taken by sweeping in Baltimore and Frederick Counties. (U. Md., Ent. Dept.). VIRGINIA - Adults active: 4 per 100 sweeps in Loudoun, Stafford, and Spotsylvania Counties, 3 per 100 in Fauquier County. (Morris, Muka).

CLOVER LEAF WEEVIL (Hypera punctata) - DELAWARE - Heavy damage to red clover at Kenton and many other locations. Common on alfalfa but less destructive. (Milliron). VIRGINIA - Two larvae per 100 sweeps in Rockbridge, Frederick, Orange and Bedford Counties. (Morris). ILLINOIS - State average 11.4 larvae per square foot and range in all fields 1.5 to 30.5 per square foot with highest population in southeastern, east-southeastern and central areas. Insect less abundant than at same time for previous two years, although two reports of severe leaf ragging. (Petty). MISSOURI - Evidence of damage in all areas. From 3-18 per square foot of red clover and 1-7 per square foot of alfalfa in east-central area. From 0.5 to 4 per square foot in red clover and alfalfa in southeast. Larvae in all stages and about 10 percent show fungus disease. (Kyd, Thomas). UTAH - Adults on alfalfa at Leeds. (Knowlton).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - DELAWARE - Adults active on red clover. Many small to half-grown larvae at most locations. (Milliron).

SWEETCLOVER WEEVIL (Sitona cylindricollis) - DELAWARE - Adult injury noted from Newark to Harrington. (Milliron). MISSOURI - Moderate to heavy damage to sweetclover along Mississippi River bottoms. Four to 5 adults per crown in one St. Genevieve County field. (Kyd, Thomas).

CLOVER ROOT CURCULIO (Sitona hispidula) - VIRGINIA - Adult population per 100 sweeps by county: Frederick 2, Fauquier 4, Stafford 20, Spotsylvania 19, Culpeper 14, Orange 1. (Morris).

BEAN LEAF BEETLE (Cerotoma trifurcata) - DELAWARE - Adults collected in red clover near Felton. (Milliron). VIRGINIA - In connection with surface woods trash examination for surviving boll weevil in southeastern counties, bean leaf beetle was found at rate of 1-11 beetles per 10 square yards of trash. (Cotton Ins. Sect., VPI Ext., and Va. State Ent.).

MEADOW SPITTLEBUG (Philaenus leucophthalmus) - DELAWARE - Hatching well underway on alfalfa, clovers and other plants in Kent and Sussex Counties. Beginning in New Castle. (Milliron). PENNSYLVANIA - A few nymphs hatched in alfalfa and clover in southern Lancaster and York Counties. (Pepper). Eggs about ready to hatch in Washington County. Readily found in Blair County. (Udine). MARYLAND - Scarce but beginning to hatch on alfalfa and red clover over most of State. (U. Md., Ent. Dept.).

PEA APHID (Macrosiphum pisi) - VIRGINIA - Increasing rapidly on alfalfa throughout State. Surveys of alfalfa in 9 counties revealed populations from 10 to about 1000 per sweep of 15-inch net, heaviest in Bedford County. Indications heavy populations also in more southern counties. (Morris). MARYLAND- Building up tremendously on alfalfa on Eastern Shore. From 20-450 per sweep in Queen Annes and Talbot Counties. Only 6 per sweep in Montgomery County. (U. Md., Ent. Dept.). PENNSYLVANIA - Very few in alfalfa in Lancaster County. (Pepper). DELAWARE - Increasing on alfalfa and clovers in some locations. (Milliron). ILLINOIS - Extremely light in northern two-thirds of State. Average of 1.6 per 10 sweeps in clover and alfalfa in southern third. (Petty). MISSOURI - Very light, 0-2 per sweep, on alfalfa in southeast. (Kyd, Thomas). UTAH - Observed on alfalfa at Leeds. (Knowlton). ARIZONA - Appearing in alfalfa in Marana-Sahuarita areas April 4-6. (Ariz. Coop. Rept.).

YELLOW CLOVER APHID (Myzocallis trifolii) - OKLAHOMA - Widespread in most parts of State. Spraying common in most areas. (Bryan, Flora, Bieberdorf, Howell). ARIZONA - Heavy buildup in Salt River Valley alfalfa April 1. General in Marana-Sahuarita areas April 4-6. Spotted damage in Graham County. (Ariz. Coop. Rept.).

FLOWER THRIPS (Frankliniella tritici) - LOUISIANA - Heavy on white clover in West Baton Rouge Parish. (Oliver).

TOBACCO THRIPS (Franklinella fusca) - LOUISIANA - Moderate on white clover in St. Landry Parish, April 2. and on crimson clover in Claiborne Parish, April 7. (Oliver).

GREEN CLOVERWORM (Plathypena scabra) - LOUISIANA - Thirty-six per 200 sweeps of white clover St. Landry, 23 per 200 sweeps East Feliciana Parish, April 2. Twenty per 100 sweeps in crimson clover in Claiborne Parish and 15 per 100 sweeps on alfalfa Bossier Parish, April 7. (Oliver). ARKANSAS - Infestations relatively heavy in alfalfa. Up to 2 first to third-instar larvae per sweep of 12-inch net. (Warren).

LEAFHOPPERS - ILLINOIS - One female Empoasca sp. collected on red clover at Eldorado April 6. (Petty).

VA. - Population in alfalfa per 100 sweeps (by county) Rockbridge 3, Augusta 4, Fauquier 4, Stafford 12, Spotsylvania 5. (Morris).

POTATO LEAFHOPPER (Empoasca fabae) - LOUISIANA - Thirteen per 200 sweeps in California burclover and 6 per 200 in white clover at Baton Rouge March 30. Fifteen per 200 sweeps in sweetclover and 41 per 200 sweeps in California burclover at Baton Rouge April 4. (Oliver).

CRANE FLIES - TENNESSEE - Heavy infestation in about 300 acres of ladino clover and pastures in Hawkins County. (Dozier).

TARNISHED PLANT BUG (Lygus lineolaris) - DELAWARE - Adults numerous in crimson clover at Greenwood, less abundant in other legumes. (Milliron). PENNSYLVANIA - Adults in hay in Lancaster County, April 5. (Pepper). LOUISIANA - Two adults, 7 nymphs per 200 sweeps of white clover in St. Landry Parish; 23 adults, 8 nymphs per 200 sweeps of sweetclover and 20 adults, 13 nymphs per 200 sweeps of burclover East Baton Rouge Parish; 6 adults, 4 nymphs per 200 sweeps of vetch West Feliciana Parish, April 2. Twelve adults, 8 nymphs per 100 sweeps in alfalfa, Bossier Parish, April 7. (Oliver). ILLINOIS -Average of 0.1 and 0.4 adults per sweep in alfalfa and clover in southwestern and southeastern areas, respectively. (Petty).

LYGUS BUGS - ARIZONA - Building up in alfalfa in areas of Maricopa County. (Ariz. Coop. Rept.).

BRISTLY CUTWORM (Lacinipolia renigera) - DELAWARE - Continues abundant in forage legumes generally. (Milliron).

CLAY-BACKED CUTWORM (Agrotis gladiaria) - MISSOURI - Light to moderate populations, 1 to 12 per square yard, continue to damage red clover, alfalfa and pasture over much of southern two-thirds of State. Larvae mainly third and fourth instars. Damage light but increasing. (Kyd, Thomas).

CUTWORMS - LOUISIANA - Agrotis ypsilon and Feltia subterranea averaging 1 per 3 linear feet of row in St. Landry Parish, April 2. These species continue to cause considerable damage to young corn and soybeans in this parish, April 7. (Oliver). ARKANSAS - Agrotis sp. infestations light in alfalfa and crimson clover in northwestern area. (Warren). TENNESSEE - Heavy scattered infestations in pasture fields in north central area. (Mullett). Small numbers of Feltia ducens in most alfalfa fields and in a few pasture and small grain fields in northeastern counties. Cutworms ranged from 2-3 per square foot in Sevier County to less than 1 per square foot in more northern counties. (Dozier).

FRUIT INSECTS

CODLING MOTH (Carpocapsa pomonella) - NORTH CAROLINA - Overwintering larvae in Wilkes County survivied the freezing temperatures of late March. (Turnipseed).

APPLE APHID (Aphis pomi) - OREGON - Hatching on apple, April 4, at Hood River. (Ellertson). Hatching March 28 at Milton-Freewater. (Wallace). NORTH CAROLINA - Young aphids, recently hatched, killed by freeze of late March in Wilkes County. There was only a partial hatch and remaining eggs show no evidence of being affected by the weather. (Turnipseed).

GREEN PEACH APHID (Myzus persicae) - OREGON - Hatching March 9 at Milton-Freewater. Abundance low compared with previous years. (Wallace). UTAH - Some present in peach blossoms at Leeds. (Knowlton).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - PENNSYLVANIA - Moths depositing eggs in most apple orchards, Adams County, April 4. (Asquith).

EUROPEAN RED MITE (*Metatetranychus ulmi*) - NORTH CAROLINA - Newly-hatched mites on apple in Wilkes County killed by freezing temperatures of late March, but unhatched eggs appear not to have been affected. (Turnipseed). VIRGINIA - Eggs light to medium in apple orchards in northern area but heavy in scattered orchards. Hatch expected by April 15. (Hill).

SCALE INSECTS - VIRGINIA - FORBES SCALE (*Aspidiotus forbesi*) and SCURFY SCALE (*Chionaspis furfura*) infestations light and scattered in apple orchards of northern part of State. TERRAPIN SCALE (*Lecanium nigrofasciatum*) infestations light in Rappahannock County. (Hill). NEW YORK - SAN JOSE SCALE and LECANIUM SCALE reported in more than usual numbers and building up in Monroe County. (Corey).

A LEAF MINER (*Callisto geminatella*) - VIRGINIA - Adults first observed emerging in northern apple orchards, March 31. (Hill).

ORIENTAL FRUIT MOTH (*Grapholitha molesta*) - NORTH CAROLINA - Overwintering pupae in Wilkes County unaffected by freeze of late March. (Turnipseed).

PEAR THRIPS (*Taeniothrips inconsequens*) - OREGON - Peak of emergence reached April 6 in Willamette Valley. (Jones). Abundance low compared with previous years. (Wallace).

PEAR PSYLLA (*Psylla pyricola*) - OREGON - Actively laying eggs since March 17, Hood River. (Ellertson). NEW YORK - Egg laying fairly heavy in protected orchards in Ulster County, but cool weather apparently held up usual egg laying for this date. (Palmer). Eggs found in small numbers, April 6, Wayne County. (Small). First adults found February 20, during a warm spell, and first eggs found April 5 in Niagara County. (McNicholas). Eggs found in limited numbers in Monroe County. (Corey). Fair number of eggs April 6 in Orange County. (Zaharchuk).

TARNISHED PLANT BUG (*Lygus lineolaris*) - PENNSYLVANIA - Few on peach buds at York, April 7. (Pepper).

PLUM CURCULIO (*Conotrachelus nenuphar*) - VIRGINIA - Emergence expected in a week or 10 days. (Hill).

A LEAF ROLLER (*Platynota stultana*) - FLORIDA - Averaging 1 to 4 larvae per panicle of lychee at Merritt Island, Brevard County. (Pinkerton).

BLACK CHERRY APHID (Myzus cerasi) - NEW YORK - Hatching on April 5 in Orange County. (Zaharchuk).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - DELAWARE - Hatching as far north as Newark. Small nest conspicuous in wild cherry trees from Hartly southward. (Milliron).

MEXICAN FRUIT FLY (Anastrepha ludens) - TEXAS - In the Rio Grande Valley area more adults trapped this period than any other 15-day period this season. In 11 properties a total of 11 A. ludens, 7 females (2 of which were gravid) and 4 males were taken. All specimens were trapped in Hidalgo County. The fruit fly population, as revealed by traps, has been comparatively low throughout the year as only 29 adult A. ludens have been trapped. Two larval infestations were found in grove inspections, the first of the current season found on March 22, in grapefruit, near Mercedes, and the other also in grapefruit, was found near Mission, March 28. Both infestations were very light, each containing only one infested fruit. (Mex. Fruit Fly Cont. Proj., 16-31).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Increased from 5 per 100 terminals March 28 to 134 per 100 terminals April 4 on navel oranges at Tempe. (Ariz. Coop. Rept.).

CITRUS BLACKFLY (Aleurocanthus woglumi) - MEXICO - Infestation found in Nuevo Laredo, Tamaulipas, immediately across the Rio Grande from Laredo, Texas was most significant finding in the northeastern area during this period. This new infestation found March 15 consisted of only one leaf, and was located 3 blocks from the nearest infested property of 1954. Seven new infestations were found in the Victoria district, Nuevo Leon, this period. (Citrus Blackfly Cont. Proj., March 16-31).

SIX-SPOTTED MITE (Tetranychus sexmaculatus) - FLORIDA - Infestations continue to increase on citrus and becoming severe on new leaves. (Pratt, Thompson, Johnson).

TRUCK CROP INSECTS

BEET LEAFHOPPER (Circulifer tenellus) - ARIZONA - Light infestation in all early fields of cantaloup in Salt River Valley, March 31. (Ariz. Coop. Rept.).

Spring potato psyllid situation

A survey in late March of psyllids on wild host plants in the overwintering and spring breeding areas in the Southwestern States showed above normal populations were available to move into northern potato and tomato growing areas in Colorado, Utah, Wyoming, Nebraska and Montana. The highest populations occurred in central Arizona where they averaged 225 per 100 sweeps. This is double the population occurring in 1954 in this area. An average population of 13 in southern California is one-third of that in 1954. In southwestern Texas and southern New Mexico psyllids averaged 22 per 100 sweeps which is about half as many as occurred in 1954.

It is believed that southern California is the source of psyllids infesting northern Utah during the summer months, central Arizona is the source for psyllids infesting eastern Utah and western Colorado, and the Texas-New Mexico area is the source for eastern Colorado, eastern Wyoming and western Nebraska. In the latter area epidemic numbers resulted during the summer in 1949 following a spring population of 18 in the Texas-New Mexico area, in 1950 following a spring population of 19, and in 1953 following a spring population of 29. Few previous records are available for comparison in the areas west of the mountain range.

The development of epidemic numbers in the Northern States in 1955 will depend on weather conditions during May and June when the northward movement occurs. Slightly above normal temperature in May and about normal temperature in June in the Northern States is favorable for a psyllid movement. (Wallis).

CABBAGE APHID - DELAWARE - Light infestation on seeding cabbage near Georgetown. (Milliron).

GREEN PEACH APHID (Myzus persicae) - NORTH CAROLINA - Tobacco plant beds in Moore and Scotland Counties with 3-4 aphids per leaf in limited areas along margins of beds. (Guthrie).

IMPORTED CABBAGEWORM (Pieris rapae) - DELAWARE - Adults in flight generally in Kent and Sussex Counties. (Milliron).

AN INTRODUCED FLEA BEETLE (Phyllotreta cruciferae) - DELAWARE - Adults active near Townsend on turnips and kale. (Milliron).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - LOUISIANA - Continued to threaten strawberries in Tangipahoa Parish. Moderate in onions in West Feliciana Parish. Severe on peppers in St. James Parish, April 2. Severe infestation on tomatoes, cabbage and turnips in Ascension Parish. (Oliver).

THRIPS - ARIZONA - Light infestation on 80 acres of onions in Maricopa County, March 25. (Ariz. Coop. Rept.).

ONION THRIPS (Thrips tabaci) - LOUISIANA - Moderate infestation in onions in West Feliciana Parish. (Oliver, April 2).

CLAYBACKED CUTWORM (Agrotis gladiaria) - LOUISIANA - Very severe infestation in home gardens in Claiborne and Webster Parishes, 75 percent of garden peas destroyed. Average of 1 cutworm per linear foot of row and up to 5 larvae observed under one plant, Claiborne Parish. (Oliver).

SEED-CORN MAGGOT (Hylemya cilicrura) - DELAWARE - Adults at many locations in Kent and Sussex Counties. (Milliron).

FLEA BEETLES - TENNESSEE - Becoming active in tobacco beds in Greene County and causing scattered damage to beds not killed by last freeze. (Dozier).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - NORTH CAROLINA - Moderate infestations continue. (Scott). VIRGINIA - Evidence of light feeding by adults in several plant beds in Pittsylvania County. (Dominick).

NORTHERN MOLE CIRCKET (Gryllotalpa hexadactyla) - NORTH CAROLINA - Light infestation in tobacco plant beds in Onslow County. (Algood).

COTTON INSECTS

PINK BOLLWORM (Pectinophora gossypiella) - TEXAS - Total season's inspection to March 31 shows average of about 5 hibernating larvae in each 100 bolls examined since January 1. Fifty-one percent of fields examined showed living pink bollworms in bolls from standing stalks while only 16 percent of fields in which stalks have been destroyed showed survival in surface debris. All areas report no evidence of mortality of hibernating pink bollworms from the recent freeze. (PBW Cont. Proj.).

Boll Weevil Survival Counts, Virginia:

Surface trash examinations for surviving boll weevils in southeastern Virginia have been completed. Live boll weevils were found at rates of 0 to 968 per acre with average of 73 per acre. The 1954 fall examinations showed average of 2,759 weevils per acre for Southampton County while spring examinations at same sites showed no weevils. In Mecklenburg County, 484 weevils per acre were found in 1954 fall survey compared with 193 per acre in spring of 1955. In Brunswick County, there were 2,130 weevils per acre compared with 96 in spring examinations. The 1954 fall examinations showed an average for all samples of 2,033 weevils per acre compared to 73 per acre in spring of 1955. Percent survival was 3.5 percent. (Cotton Ins. Sect., VPI Ext., and Va. State Ent.).

Cotton Pest Situation, Lower Rio Grande Valley, Texas:

SPIDER MITES found widely but numbers do not justify control measures. Very light infestations of BOLLWORMS in a few older cotton fields. Low numbers of COTTON APHIDS and FLEAHOPPER adults. THRIPS damaging seedling cotton in fields adjacent to onions. (Wene, Dean, Fuller).

AN ANT (Solenopsis sp.) - ARIZONA - Damage to seeds in 25 acres early cotton in Continental area. About 40 percent of seeds affected. The ants eat into the seed after it has softened. Det. F. Werner. (Ariz. Coop. Rept.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

ORANGE TORTRIX (Argyrotaenia citrana) - IDAHO - Found on geranium cuttings by a florist in Twin Falls and submitted for identification in December 1954. Plants were shipped in from an infested State. As far as known this is the first record of a collection of the species in Idaho. (Douglass, Manis).

ELM LEAF BEETLE (Galerucella xanthomelaena) - ARIZONA - Beginning to appear on elm in Phoenix. Control started. (Ariz. Coop. Rept.).

TENT CATERPILLARS (Malacosoma pluviale and M. disstria) - OREGON - Surveys in northwestern area indicate lower infestations than last year in most cases. Where most serious infestations occurred in 1954 there are, as a rule, no signs of eggs. Apparently larvae starved for lack of food. Where lighter infestations occurred a few eggs can be found, especially on preferred hosts such as wild apple. None to two egg masses per three minutes of examination were the usual find with an occasional five or six per three minutes. This indicates infestations will probably be spotty. (Roth).

BOXWOOD LEAF MINER (Monarthropalpus buxi) - NORTH CAROLINA - Moderate infestation in Jackson County. (Scott).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - VIRGINIA - Infestations heavy on lilacs in northern Virginia. (Jackson).

INSECTS AFFECTING MAN AND ANIMALS

BEDBUG (Cimex lectularius) - OKLAHOMA - Reported from several apartments in Oklahoma City. (Rogers).

HEAD LOUSE (Pediculus humanus capitis) - NORTH CAROLINA - Medium infestation on a child in Wake County. (Jones).

MOSQUITOES - FLORIDA - Mansonia perturbans, in adult stage, collected in Highlands County. Adults of Wyeomyia vanduzeei and W. mitchelli fairly abundant in shady hammocks in same county. (Weems). VIRGINIA - Anopheles punctipennis observed biting during week March 15 at Charlottesville. (Bobb).

CATTLE GRUBS - OKLAHOMA - Heel fly activity at high level over most of State. (Howell).

EAR TICK (Otobius megnini) - UTAH - Less numerous in ears of young cattle at Milford than in springs of 1953 and 1954. (Esplin, Knowlton).

A BUFFALO GNAT (Prosimulium pecuarum) - ARKANSAS - Being found in most southern counties. Although not as heavy as in some years, bothering cattle to some extent. (Barnes, April 5).

CHICKEN MITE (Dermanyssus gallinae) - NORTH CAROLINA - Laying house of over 1000 birds severely infested in Scotland County. (Farrier).

STORED-PRODUCT INSECTS

KHAPRA BEETLE (Trogoderma granarium) - ARIZONA - Moderate to severe infestation in 3 large grain and seed mills and 1 farm storage barn in Phoenix area. Also in 1 retail feed store at Parker. (March reports). (Ariz. Coop. Rept.).

A BULB MITE (prob. Rhizoglyphus echinopus) - NORTH CAROLINA - Caused about 30 percent loss of 3,000 gladiolus bulbs in storage in Alamance County. Easter lilies in Scotland and Wake Counties infested, some almost commercially unsalable. (Farrier).

LIGHT TRAP COLLECTIONS

		P. unipuncta	A. ypsilon	P. ornithog.	F. subterr.	H. armigera	P. margaritosa
LOUISIANA							
Bat. Ro.	3/25-4/7	4	20	6	64	1	7
St. Jos.	3/23-4/7	27	1		2		5
Franklin	2/23-4/6	12	8	6	16	1	1
Tallulah	4/1-7	235	49	2	7	1	33
MISS. (Counties)							
Coahoma	4/2-8	12	2				20
Humphreys		153	34		2		35
Oktibbeha		26	2				3
Pearl R.		12	2				3
Washington		126	17				21
KY. (County)							
Trigg	3/30-4/4	69					
ARKANSAS							
Hope	4/1-7	136					1
Stuttgart	4/1-6	64	3			1	1
Van Buren	4/6-7	4	4				1
Fayett.	4/2-8	32	18				19
S. C. (County)							
Oconee	4/4-9	15					

Other collections of importance: MISSISSIPPI - Washington County, Agrotis malefida 11, Caenurgina erechtea 17, Trichoplusia ni 3., KENTUCKY - Heavy catches of seed-corn beetle in southwest tip of State. SOUTH CAROLINA - Cutworms 3, Euetheola rugiceps 2. LOUISIANA - Baton Rouge, E. rugiceps 14, Phyllophaga sp. 158; Franklin, E. rugiceps 6; Tallulah, Laphygma exigua 111, Loxostege similalis 30, Phyllophaga spp. 53.

MISCELLANEOUS INSECTS

TERMITES - VIRGINIA - Flights attracting attention. (Morris). MARYLAND - Reports of swarming from several counties. (U. Md., Ent. Dept.). OKLAHOMA - Swarming widespread. (Howell). PENNSYLVANIA - R. flavipes swarming in Jefferson, Westmoreland and Butler Counties. (Adams, Udine). MISSISSIPPI - Winged-forms of Reticulitermes flavipes emerging in Coahoma, Lee and Leflore Counties. (Hutchins).

OLD HOUSE BORER (Hylotrupes bajulus) - MARYLAND - Infesting timbers of home in Anne Arundel County. (U. Md., Ent. Dept.).

ELM LEAF BEETLE (Galerucella xanthomelaena) - PENNSYLVANIA - Causing concern around homes in Adams, Columbia, Delaware and Centre Counties. (Pepper, Gesell, Menusan, Adams).

GERMAN COCKROACH (Blattella germanica) - NORTH CAROLINA - Large apartment building in Alamance County generally infested. (Scott).

THRIPS - MISSISSIPPI - Thrips, probably Frankliniella fusca, reported many times coming to lights, entering houses and cars and biting people at Starkville. (Hutchins).

RECENT IMPORTANT INTERCEPTIONS AT PORTS OF ENTRY

Living larvae of the Asiatic rice borer, Chilo suppressalis (wlk.) =simplex (Btlr.))*, were intercepted recently in rice straw from Japan at Houston, Texas (Slobodnik) and at New Orleans, Louisiana (Hamilton). This insect is considered a serious pest of rice in the Orient. It is said to occur from India east to China, Japan and Korea, south to Malaya and the East Indies and east through the Pacific Islands to Hawaii. It has become established in recent years in the rice growing areas of Spain. In addition to rice, it has been reported attacking sugarcane, corn, sorghum, millet, species of Typha and Phragmites and various grasses. Injury to rice is caused by the larvae feeding in the stems. Young plants when attacked are severely injured, often killed. Older plants are weakened so that they are easily flattened by wind or rain and fail to produce full heads of grain. Many dead shoots and leaves appear in heavy infestations.

Observations on the biology of the insect indicate that it hibernates as a mature larva in straw or stubble. The number of generations vary from 2 to 4. Adult emergence in spring is very irregular.

*Kapur, A. P. 1950. The identity of some Crambinae associated with sugarcane in India and some species related to them. Roy. Ent. Soc. London Trans. 101(11): 389-434.

Mating and egg laying occur soon after emergence. Eggs are deposited in large irregular clusters, often as many as 100, on tips of leaves or under leaf sheaths. Larvae on hatching bore into the stem. Many larvae may occur together. Larval stage lasts about 4 weeks. Pupation occurs in the stems. Pupal stage averages 10 days.

Living larvae of C. suppressalis have been intercepted on numerous occasions in rice straw from the Orient used as packing for china and brass ware, carved wood and curios and in rice straw mats or rope used as dunnage aboard ships. It is not known to occur in the continental United States. (Compiled - by Plant Quarantine Branch).

ADDITIONAL NOTES

KANSAS - Non-economic infestations of GREENBUG (Toxoptera graminum) were found in several central and south central counties. Counts per foot of drill row of wheat and/or barley ranged from 0.5 to 5 aphids per foot. Sweep counts ranged from 3 to 10 greenbugs per 25 sweeps of a 15-inch net. ENGLISH GRAIN APHIDS (Macrosiphum granarium) were found on wheat in nearly all fields in this area. Counts averaged 5 to 10 aphids per 25 sweeps of a 15-inch net. PEA APHID (Macrosiphum pisi) has begun to appear in nearly all alfalfa fields in central and southern Kansas and as far north as Ottawa County. Counts very light, only 5 to 20 aphids per 25 sweeps of a 15-inch net. (Matthew). Very light, scattered colonies of small aphid, probably YELLOW CLOVER APHID (Myzocallis trifolii), found on alfalfa in southern Sumner County. This aphid also was reported on alfalfa in Meade County. Specimens being confirmed. (Frazier). ARMY CUTWORMS (Chorizagrotis auxiliaris) found in wheat, barley, and alfalfa fields of central and south central Kansas. Infestations of economic importance were found in seedling alfalfa fields of Reno, Sedgwick, Sumner, Harper, and Kingman Counties. Counts in fall-seeded alfalfa averaged 2 per square foot. No counts of over one larva per square foot in wheat or barley fields in this area or in most wheat fields of western Kansas. (Harvey, Depew). Light to severe infestations of BROWN WHEAT MITE (Petrobia latens) occurs throughout south central Kansas. Counts on well-established wheat range from 25 to 60 per linear foot of drill row. Counts in many drought-affected wheat fields ranged from 40 to over 400 mites per foot of drill row. The counties in which the heavier infestations occur are Reno, Kingman, Pratt, Barber, Harper, Sumner, and Sedgwick. (Matthew).

Counts in wheat fields of the two tiers of counties south from Ellis and Russell Counties ranged from 25 to 100 mites per foot of drill row. (Harvey). Counts in western Kansas range from 25 to 100 per foot of drill row with heavy infestations in fields of volunteer wheat. (Depew). Examination of girdled corn stalks showed 100 percent winter mortality of Southwestern corn borer (*Diatraea grandiosella*) larvae in one field in Geary County (central) and in one in Cloud County (north central). Another field in Cloud County showed 10 percent survival.

WEST VIRGINIA - (Kearneysville area, April 13) - CODLING MOTH (*Carpocapsa pomonella*) overwintering larvae under bark on trees about usual in numbers. Spring brood emergence expected to be normal. APHIDS hatching complete. Populations below normal. ORCHARD MITES overwintered populations slightly less than usual except CLOVER MITE (*Bryobia praetiosa*) which has become more widespread with substantial increase in numbers. RED-BANDED LEAF ROLLER (*Argyrotaenia velutinana*) egg-laying has been comparatively light. Population appears to be rather low. (Hamstead).

First Reported Records of Season (By Areas):

APPLE APHID hatching, March 28, Oregon; GREEN PEACH APHID hatching March 9, Oregon; RED-BANDED LEAF ROLLER ovipositing, April 4, Pennsylvania; A LEAF MINER (*Callisto geminatella*) adults emerging,March 31, Virginia; PEAR PSYLLA ovipositing, March 17, Oregon, and eggs April 5 and 6, adults February 20, New York; TARNISHED PLANT BUG, April 7, Pennsylvania; BLACK CHERRY APHID hatching April 5, New York; EASTERN TENT CATERPILLAR hatching in Delaware, and SEED-CORN MAGGOT adults noted in same State; and CORN EARWORM moth at Stuttgart, Arkansas.

STATE OF CALIFORNIA
DEPARTMENT OF AGRICULTURE
W. C. JACOBSEN, DIRECTOR
SACRAMENTO
March 10, 1955

ILLUSTRATED KEY TO SPECIES OF TROGODERMA AND TO RELATED GENERA OF DERMESTIDAE COMMONLY ENCOUNTERED IN STORED GRAIN IN CALIFORNIA

The keys which follow are partly original work and partly from three other sources: 1. Hinton, 1945; 2. Beal, 1954; 3. Howe and Burges, 1955. The adult characters distinguishing the species of *Trogoderma* are largely the work of Okumura. The larval key is by Blanc and the characters used are from Hinton and Beal except for particularly important characters defining *granarium*, which are from Howe and Burges.

References cited are:

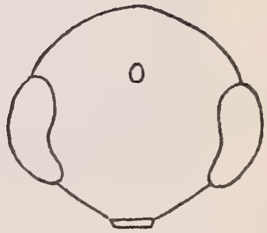
1. Hinton, H.E. Beetles Associated with Stored Products British Museum, 1945.
2. Beal, R. S. Jr., Biology and Taxonomy of the Nearctic Species of *Trogoderma* University of California Pub. in Ent., 10(2): 35-102, 1954.
3. Howe, R. W., and Burges, H.D., *Trogoderma afrum* Pr., a synonym of *T. granarium* and a comparison with *T. versicolor*. (In press).

To work the keys it is necessary to make microscopic dissections of adults and slide mounts of the larvae. Some of the drawings are diagrammatic and complete in detail only to the extent necessary.

A. ADULTS

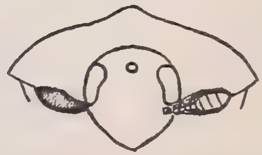
1. Head with a median ocellus (A); species usually less than 5.5 mm. long........2

Head without an ocellus; species usually 5.5-12 mm. long......DERMESTES Linnaeus


A

2(1). Prothorax without cavities for the reception of the antennae or, if cavities are present, they are not visible from frontal view. Dorsal surface always hairy, only rarely with a few patches of scale-like hairs among normal hairs.....................3

Prothorax with cavities for the reception of antennae (B); dorsal and ventral surface clothed entirely with triangular or broadly oval scales ....ANTHRENUS Fabricius


B

3(2). Hind tarsi with basal segment as long or longer than second..TROGODERMA Berthold 4

Hind tarsi with basal segment much shorter than second (C).....ATTAGENUS Latreille

4(3). Greatest width of male genitalia more than 2/3 the length of aedeagus (D)..........5

Greatest width of male genitalia less than 2/3 the length of aedeagus (E)..........8

5(4). Tergite of first periphallic segment almost straight at middle of distal margin(F)..6

Tergite of first periphallic segment forming an angle at middle of distal margin (G) ....simplex Jayne

6(5). Width of bridge of male genitalia narrower than aedeagus at point where they cross each other (H)...........................7

Width of bridge of male genitalia as wide or wider than aedeagus at point where they cross each other (I).....granarium Everts

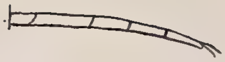
7(6) Ninth abdominal segment or ring segment of male flattened ventrally (J); inner margin of eyes emarginated (A) versicolor (Creutzer)

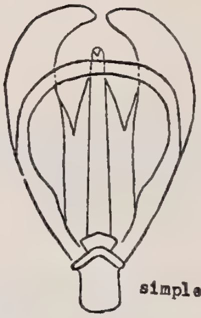
Ninth abdominal segment or ring segment of male rounded ventrally (K); inner margin of eyes not emarginated.....parabile Beal

8(4). Third segment of male antenna minute, about 1/2 of either second or fourth segments in length and width; segments of club only moderately eccentric (L)...........9

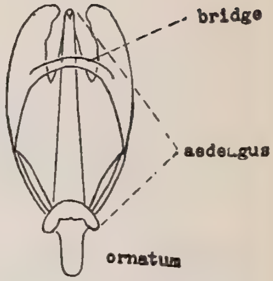
Third segment of male antenna approximating second and fourth segments in length and width; segments of club decidedly eccentric or pectinate (M)..ornatum (Say)

C

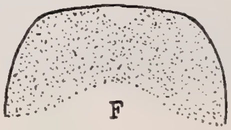




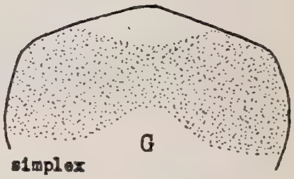
D simplex



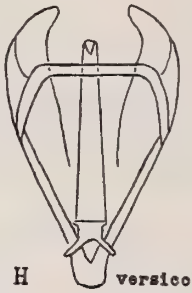
E ornatum



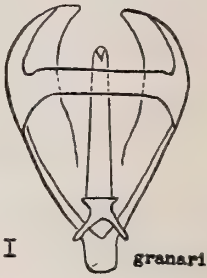
F granarium



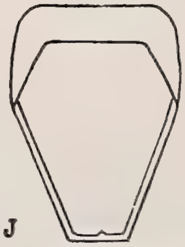
G simplex



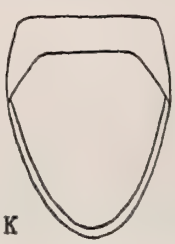
H versicolor



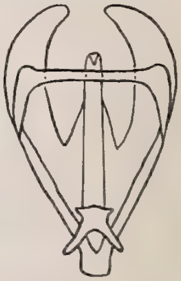
I granarium



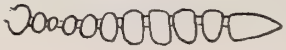
J versicolor



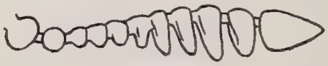
K parabile



parabile



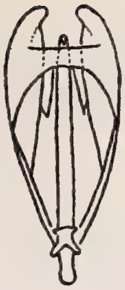
L sternale

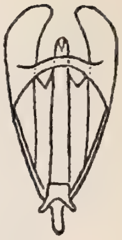


M ornatum

9(8). Median section of bridge between lateral lobes of male genitalia more or less straight (N).............sternale Jayne

Median section of bridge between lateral lobes of male genitalia arched (O) .... grassmani Beal

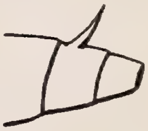

N


O

B. MATURE LARVAE

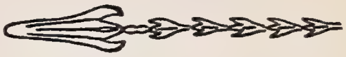
1. Urogomphi present on dorsum of 9th abdominal segment(A)..DERMESTES Linnaeus

Urogomphi absent..........................2


A

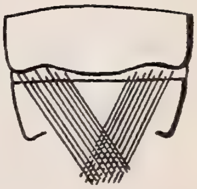
2(1). Hastisetae (spear-headed hairs) present on abdominal tergites (B)................3

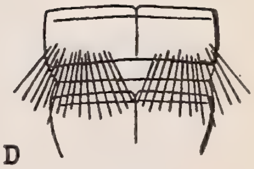
Hastisetae absent.......ATTAGENUS Latreille


B

3(2). Tufts of hastisetae on abdominal tergites arising entirely from a membranous area on the caudo-lateral edge of segments; hastisetae from right and left sides usually converging over the cauda (C) ....ANTHRENUS Fabricius

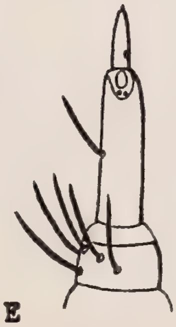
Tufts of hastisetae on abdominal tergites arising from the sclerotized dorsal surface of the segments; hastisetae not obviously convergent over the cauda (D) ....TROGODERMA Berthold 4


C

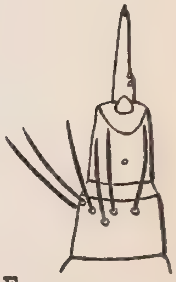

D

4(3). Second antennal segment 3 times length of 1st (E)...................simplex Jayne

Second antennal segment less than twice length of 1st (F).....................5


E

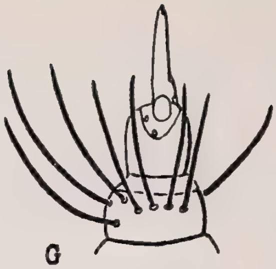
simplex


F

parabile

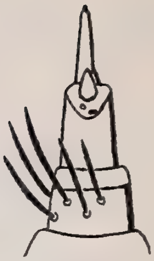
5(4). Setae of basal antennal segment arranged in a whorl, almost completely encircling the segment, setae not bunched on the mesal side of the segment (G)..........6

Setae of basal antennal segment bunched on mesal side of segment, 1/3 or more of the outer portion of the segment bare (H)....................................7



G

versicolor

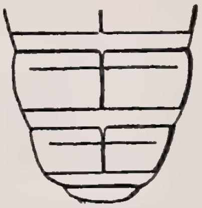


H

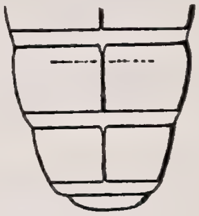
grassmani

6(5). Abdominal tergites 1 through 8 each bearing a transverse line (antecostal suture) near the anterior margin of the sclerotized area (I); 2nd antennal segment normally without setae (G) ....versicolor (Creutzer)

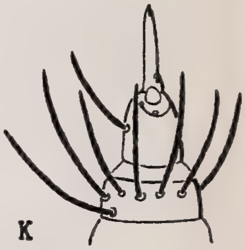
Abdominal tergites with antecostal suture on segments 1 through 6, but with suture faint or interrupted on 7th and usually absent on 8th (J); 2nd antennal segment with or without a seta (K) ....granarium Everts



I



J

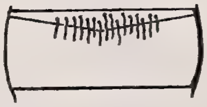


K

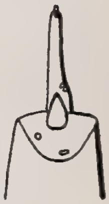
granarium

7(5). Setae of anterior portion (acrotergite) of 1st abdominal tergite all sufficiently long to extend caudad across the antecostal suture (L); accessory papilla of 2nd antennal segment extended distally into a sharp point (M)........8

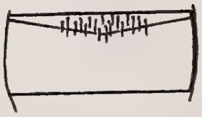
Setae of 1st abdominal acrotergite short, at least part of the more anterior setae not sufficiently long to cross the antecostal suture (N); accessory papilla of 2nd antennal segment rounded distally, not with a sharp point (O)&(F) ....parabile Beal



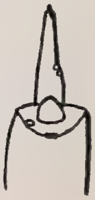
L



M



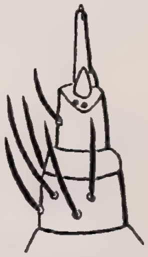
N



O

8(7). 2nd antennal segment without setae........9

2nd antennal segment normally with one or two setae (P)............sternale Jayne

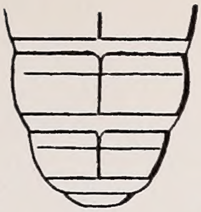


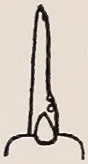
P

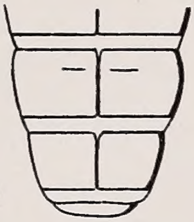
sternale

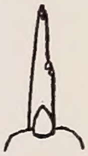
9(8). Antecostal sutures of 7th and 8th abdominal tergites extending completely across the tergites (Q); basal sensory pores of terminal antennal segment situated at about basal ¼ (R)&(H).....*grassmani* Beal

Antecostal sutures of 7th and 8th abdominal tergites not extending completely across the tergites, sometimes suture entirely absent on 8th segment (S); basal sensory pores of terminal antennal segment situated distad of basal 1/3 (T) ....*ornatum* (Say)


Q


R


S


T

(This is an illustrated revision of a previously issued unnumbered key released January 12, 1955.)

H. M. Armitage, Chief
Bureau of Entomology

George T. Okumura

By: George T. Okumura
Systematic Entomologist

A separate of
Cooperative Economic Insect Report
5(15) 1955

and

F. L. Blanc

By: F. L. Blanc
Systematic Entomologist